

R E M A R K S

The office action of June 6, 2005 has been reviewed and its contents carefully noted. Reconsideration of this case, as amended, is requested. Claims 1 through 8 remain in this case.

The specification was amended to fix typographical errors. No new matter has been entered.

The claims were amended to clarify the subject matter being claimed. No new matter has been entered.

The drawings were amended to respond to the Draftsperson's objections dated May 31, 2005. More specifically, the lines that cut through reference numerals and characters in Figs. 1, 9 and 10 have been removed. No new matter has been added.

The numbered paragraphs below correspond to the numbered paragraphs in the Office Action.

Rejection(s) under 35 U.S.C. §112

2. Claim 6 was rejected under 35 U.S.C. 1112, as being indefinite for failing to particularly point out and distinctly claims the subject matter which Applicant regards as the invention.

Applicant respectfully disagrees. Claim 2, which claim 6 depends on, has been amended to clarify the subject matter claimed. Furthermore, Applicant respectfully refers the Examiner to pages 22-24, lines 26-17 of the specification for equally spaced teeth distribution and pages 24-26, lines 19-8 for non-symmetric tooth distribution.

Applicant believes that these amendments have fully addressed the Examiner's rejections, and the claims are now in condition for allowance. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection(s) under 35 U.S.C. §102

4. Claims 1-2, and 5-8 were rejected under 35 U.S.C. 102(b) as being anticipated by Koliass et al. (USPN 5,245,968). Applicant respectfully disagrees with the rejection.

Amendments to the Drawings:

The attached sheets of drawings include changes as listed below. The attached replacement sheets replace the original sheets.

The changes are as follows.

The lines that cut through the reference numerals and characters in Figs. 1, 9, and 10 have been removed.

Attachment: 3 Replacement Sheets

Kolias et al. discloses an equally spaced left-hand cam wheel and an equally spaced right-hand cam wheel. Referring to Figure 1 and col.4, lines 25-30, 35-40, and 43-50,

"as the left-hand camshaft pulse wheel 62 which is fixed rotationally to the left-hand camshaft 12 rotates, four cam tabs 64, 66, 68, 70 equally spaced ninety degrees around the periphery and fixed to the left-hand cam pulse wheel 62, pass by the left-hand cam sensor 58. As the right-hand camshaft pulse wheel 72, which is fixed rotationally to the right-hand camshaft 14 rotates, four cam pulse wheel tabs 74, 76, 78, 80 equally spaced at ninety degrees to the right-hand cam pulse wheel 72, pass by the right-hand cam sensor 60 fixed relative to the engine. In addition, the right-hand cam pulse wheel has a cylinder identification (CID) tab 82, fixed to the right-hand cam pulse wheel 72, half-way between two right-hand pulse wheel tabs 76, 78, which, as it passes by the sensor 60, causes the sensor 60 to generate a CID pulse 84 which is received along with the right-hand cam pulses by the ECU microprocessor 16" (emphasis added). Please note that all reference numbers refer to Kolias et al. (USPN 5,245,968).

Applicants claim 1 states:

"In a VCT system having a phaser for adjusting an angular relationship between a crank angle of the crank shaft and a cam angle of a cam shaft, the system further has a controller adapted to determine the angular relationship based on equally spaced teeth distributed upon the circumference of at least one tooth wheel coupled to either the crank shaft or the cam shaft, a method comprising the steps of:

- "a) providing a tooth wheel having a physically non-symmetrical tooth distribution on the circumference of the wheel; and
- "b) adjusting the physically non-symmetrical tooth distribution into a symmetrical tooth distribution for further processing by the controller."

Kolias does not disclose a non-symmetrical tooth distribution as stated in Applicant's claim 1, instead, the teeth or tabs of Kolias are equally spaced ninety degrees around the periphery with a cylinder identification tab that is halfway or equally spaced between two of the

equally spaced tabs (emphasis added). Since Kolias does not have a non-symmetrical tooth distribution, Kolias cannot perform any of the steps of the method.

Even if Kolias did disclose a tooth wheel having a physically non-symmetrical tooth distribution on the circumference of the wheel (which the Applicant does not concede, see argument above), Kolias does not disclose adjusting a physically non-symmetrical tooth distribution into a symmetrical tooth distribution for further processing by a controller. The Examiner points to reference numeral 74, 76, 78, and 80, as well as col. 4, lines 25-55 to support his assertion that Kolias discloses this step of the claim. However, neither the figures nor the passage disclose adjusting physically non-symmetrical tooth distribution into a symmetrical tooth distribution. They merely discuss four cam pulse wheel tabs 74, 76, 78, and 80, and a cylinder identification (CID) tab 82.

Applicant's amended claim 2 states:

"In a VCT device having a phaser for adjusting an angular relationship between a crank angle of the crank shaft and a cam angle of a cam shaft, the system further has a controller adapted to determine the angular relationship based on a known relationship of equally spaced teeth distributed upon the circumference of the crank shaft and the cam shaft respectively, a method comprising the steps of:

"providing a crank tooth wheel having known tooth distribution;

"providing a cam tooth wheel having known tooth distribution; and

"using the controller for adjusting values known to the controller as needed

"wherein at least one the wheels has a non-symmetric tooth distribution."

Kolias does not disclose at least one of the wheels having a non-symmetrical tooth distribution, as stated in Applicant's amended claim 2, instead, the teeth or tabs of Kolias are equally spaced ninety degrees around the periphery with a cylinder identification tab that is halfway or equally spaced between two of the equally spaced tabs (emphasis added). Since Kolias does not have a non-symmetrical tooth distribution, Kolias cannot perform any of the steps of the method.

Therefore, it is respectfully suggested that the rejection of independent claims 1 and 2 as being anticipated by Kolias et al. (USPN 5,245,968) is overcome. Dependent claims 5-8, being dependent upon and further limiting independent claim 2, should also be allowable for that reason, as well as for the additional recitations they contain. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection(s) under 35 U.S.C. §103

6. Claims 3 and 4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kolias et al. (USPN 5,245,968) in view of Takahashi (USPN 6,880,504).

Applicant respectfully disagrees. Takahashi does not provide what Kolias lacks. More specifically, neither Kolias nor Takahashi teach or suggest a non-symmetric tooth distribution. The reasons given above in respect to the section 102 rejection of claim 2, from which claims 3 and 4 depend as to the novelty of claim 2 is repeated here by reference.

Therefore, it is respectfully suggested that the rejection of claims 3 and 4, dependent upon and further limiting independent claim 2 is overcome and claims 3 and 4 should be allowable for that reason, as well as for the additional recitations they contain. Reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

Applicant believes the claims, as amended, are patentable over the prior art, and that this case is now in condition for allowance of all claims therein. Such action is thus respectfully requested. If the Examiner disagrees, or believes for any other reason that direct contact with Applicants' attorney would advance the prosecution of the case to finality, he is invited to telephone the undersigned at the number given below.

"Recognizing that Internet communications are not secured, I hereby authorize the PTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file."

Respectfully Submitted:

Thomas McCabe

By: 

Meghan Van Leeuwen, Reg. No. 45,612

Attorney for Applicant

BROWN & MICHAELS, P.C.

400 M&T Bank Building - 118 N. Tioga St.

Ithaca, NY 14850

(607) 256-2000 • (607) 256-3628 (fax)

e-mail: docket@bpmlegal.com

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